

## CLAIMS

### What Is Claimed Is:

1. A direction-finding method comprising the steps of:

identifying a transmitter by its transmission characteristics, the method comprising the steps of:

receiving an incident transmission, said transmission defined by frequency characteristics including a final resting frequency, said transmission emanating from a spacially-defined bearing relative to said receiver;

generating a unique signature responsive to said characteristics of said transmission;

classifying said signature responsive to said final resting frequency; and

comparing said signature with a set of other transmission signatures; and

generating a transmitter-specific first line of bearing defined by said spacially defined bearing and responsive to said comparing.

2. The method of Claim 1, wherein said generating comprises generating said unique signature by applying a Fourier Transform to said received transmission.

3. The method of Claim 2, wherein said receiving comprises receiving a transmission defined by at least a keyup frequency characteristic in addition to said final resting frequency.

4. The method of Claim 3, further comprising:

a first generating step prior to said signature generating step, said first generating step comprising generating an intermediate frequency sample responsive to said received

incident transmission, said intermediate frequency sample defined by said frequency characteristics; and

a second generating step prior to said signature generating step, said second generating step comprising generating a digital intermediate frequency sample based on said intermediate frequency sample.

5. The method of Claim 4, wherein said signature generating step is responsive to said frequency characteristics of said digital intermediate frequency sample.

6. The method of Claim 5, wherein said comparing step comprises comparing said transmission signature with a set of other transmission signatures, all of said other transmission signatures defined by a final resting frequency classification substantially the same as said transmission signature of said received transmission.

7. The method of Claim 6, further comprising a second comparing step, said second comparing step being executed when said set of other transmission signatures fails to comprise a transmission signature defined by a final resting frequency classification substantially the same as said transmission signature of said received transmission, said second comparing step comprising comparing said received transmission signature to one or more sets of other transmission signatures defined by final resting frequency classifications not substantially the same as said transmission signature of said received transmission.

8. The method of Claim 7, further comprising a data repository addition step after said second comparing when said set of other transmission signatures fails to comprise a transmission signature substantially the same as said transmission signature of said received transmission, said data repository addition step comprising adding said transmission signature of said received transmission to a data repository.

**9.** The method of Claim 8, wherein said data repository addition step comprises adding said transmission signature of said received transmission to a set of said data repository defined by said final resting frequency of said received transmission.

**10.** The method of Claim 9, further comprising repeating said identifying step and said line of bearing generating step for a second said transmitter, whereby a second line of bearing is generated.

**11.** The method of Claim 10, further comprising displaying said first and second lines of bearing on a single operator display interface.

**12.** The method of Claim 11, wherein said first line of bearing is visually distinct from said second line of bearing.

**13.** The method of Claim 12, wherein said first and second lines of bearing are colored differently.

**14.** A emitter location system for determining the location of a source of an incident transmission signal, comprising:

a receiver for receiving a said incident signal;

a transmission signature device, said transmission signature device comprising:

an analog-to-digital converter device for converting said incident signal into digital data format;

a fourier transform generator for generating a transmission signature of said received signal by applying a fourier transform to said digital data;

a matching system for matching said transmission signature of said transmission with a set of transmission signatures stored in a data repository associated with said matching system; and

a plotting device for plotting a line of bearing representative of the relative orientation between said receiver and said source of said incident signals.